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ABSTRACT

This document applies Dr. Mehar Aurora's method for conducting cost benefit studies to the Food Manufacturing Technology-Dairy and the Food Manufacturing Technology-Canning and Freezing programs offered by the Moraine Park Technical Institute. Costs to individual students enrolled in the programs include tuition, fees, housing, travel, books, supplies, and foregone earnings while attending school; benefits to individuals include increased earnings, earnings while attending school, employability, and being a better consumer. For society, costs include capital and operational costs of the school, loss of tax revenues, and the foregone productivity of the laborer; benefits to society include additional tax revenues in the long-range, lower unemployment rate, less public assistance and welfare payments, and increased productivity of the workers. This study considers specific figures applicable to the Dairy, and Canning and Freezing programs, and is intended to serve as a model for future studies in the costs and benefits of vocational-technical education. An outline of the basic methodology is included, as are charts resulting from applying the methodology to program statistics. (Author/NHM)

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FINAL REPORT

Project No. 19-029-151-224

COST BENEFIT STUDIES

JUNE 30, 1974

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INTRODUCTION

PURPOSE

In cooperation with the State Board of Vocational, Technical and Adult Education, eight vocational-technical districts throughout the state of Wisconsin are presently working to establish a framework for conducting Cost Benefit Studies. This report is to be viewed as a learning experience upon which later Cost Benefit Studies may be based. It is the purpose of this project to review the numerous methods available for conducting Cost Benefit Studies, and through the implementation of one of these methods, to assist in the development of a reliable method for conducting further studies in the costs and benefits of vocational-technical education.

OBJECTIVES

The major objective of this report is to review the Food Manufacturing Technology-Dairy and the Food Manufacturing Technology-Canning and Freezing programs offered by the Moraine Park Technical Institute, and to establish the economic costs and benefits of these programs in relation to the individual students enrolled in these programs and to society in general.

Included under the economic cost aspect of vocational-technical education are the cost to the individual and the cost to society. Individual student economic costs include: tuition, fees, housing, travel, books, supplies, and foregone earnings while attending school. Economic costs to society are: capital and operational costs of the school, loss of tax revenues, and the foregone productivity of the laborer.

On the other hand, the economic benefit aspect of vocational-technical education, for the individual person, includes: increased earnings, earnings while attending school, employability, and being a better consumer.

For society, the benefits include: additional tax revenues, lower unemployment rate, less public assistance and welfare payments, and increased productivity.

The above listed costs and benefits will be determined by this project.

Additional advantages of this study include:

1. A determination if only economic costs should be included in further Cost Benefit Studies.
2. The arrival at an average economic cost for the Food Manufacturing Technology program per FTE.
3. A determination of information to be made available on computer programs.

4. A test of the method used for conducting Cost Benefit Studies by Dr. Mehar Aurora, University of Wisconsin-Stout.

METHOD

The method used in this study is based on the work of Dr. Mehar Aurora, UW-Stout, with modifications and additions by the present researcher to convert the method to present resources and available information. The method is presented in outline form, separated into cost and benefit components.

Outline of Cost Benefit Method*

I. Research Type, Ex Post Facto, Based on:

- A. Information available on the 1973-74 school year
- B. Supplemented by information from previous years projected for the 1973-74 school year.

II. Develop a Course Matrix for the Program Under Evaluation

- A. Course number (all courses)
- B. Course title
- C. Instructor's name and his annual salary
  1. name
  2. contract salary ($11,742.00)
  3. state retirement paid by district (557.75)
  4. health insurance (473.16)
  5. life insurance (57.60)
  6. long term disability (28.77)
  7. total contract-salary (12,859.28)
- D. Number of students in course
- E. Program majors
- F. Course hours per week

G. Classroom

H. Percent of course used for the program under evaluation

I. Number of course hours per week taught by the instructor

J. Faculty cost per course

K. Faculty cost per student

L. Faculty cost per student enrolled in the program under evaluation.

III. Determine Economic Cost Input

A. Instructor - establish the instructor salary cost for each course. Divide this total by the number of students in the course and multiply by the number of students in the course who are enrolled in the program under evaluation.

B. Building - the building cost equals the sum of the capital outlay, maintenance, utilities, and custodial services.

C. Equipment - the cost equals the sum of the initial cost of the equipment prorated over an instructional life span of 10 years and divided according to its use by the students in the program under evaluation.

D. Student - the sum of the costs for travel or lodging ($ .13 per mile or $760 rent per year) and the cost for registration, activities, supplies, books, and foregone earnings due to attendance in school.

E. Auxiliary - auxiliary cost equals the sum of the cost for auxiliary space and equipment in the school building plus the salaries of auxiliary personnel, divided by the total number of FTEs in the school.

F. Administration - the sum of administrative building space, equipment, and salary cost, divided by the total number of FTEs.

IV. Determine Economic Benefit Input

A. Increased tax revenues - compare the tax rates of a high school graduate in the labor market to that of a vocational-technical school graduate of the program under evaluation.

B. Increased earnings to the individual - compare the annual salaries of a high school graduate in the labor market to that of an MPTI graduate of the program under evaluation, for the rest of their working lifetime, minus the cost of attending MPTI to the student.

C. Increased productivity - assume it to be the same as Item B above, as a person is paid according to his worth to or productivity in society.

D. Increased employment - compare the unemployment rate for graduates of the program under evaluation to the general unemployment rate for the area.

V. Develop a Cost Benefit ratio based on economic cost and benefit figures obtained.

RESULTS OF COST BENEFIT STUDY

COURSE MATRIX

Food Manufacturing Program

COURSE MATRIX

The first step in the evaluation of the costs and benefits of an educational program is to develop a course matrix for all the courses included in the program. This course matrix serves as an overview of the entire area of instruction which is to be evaluated. The course matrix should contain a valuable supply of information, such as the title of each course in the program, the instructor for the course and his annual salary, the number of students in the course along with their program majors, the classroom in which the course is taught, and the percent of the students in the class who are in the program under evaluation. Other additional information which may be included are the course number, the number of class periods per week for each course, the number of courses taught by each instructor, and the instructor cost for each course.

All of this information is contained in the following course matrix for the Food Manufacturing Technology programs offered by MPTI. The information contained in this matrix was obtained from instructor and student course schedules, class enrollment charts, and room utilization charts, obtainable from the business office at the Moraine Park Technical Institute - Fond du Lac campus.

TABLE 1
REQUIRED COURSES – SECOND SEMESTER, YEAR 1

Course Number	Course Name	Instructor's Salary	Number of Students	Program Majors	Class Hours Per Week	Class-room	% of Course used for Food Manufacturing	No. of Course Hours taught by Instructor	Instructor Cost	
									Course	Student FM Student
065-117	Food Microbiology	$12,490.74	14	Food Manuf. 9 - Dairy 5 - C & F	5	706	100%	15 - first 21 - second 36	1,734.83	123.92 1,734.83
065-104	Food Chemistry 2	$13,324.55	16	12 - Dairy 4 - C & F	5	706	100%	19 - first 21 - second 40	1,665.57	104.09 1,665.57
806-175	Plant Operations, Maintenance, and Safety	$15,153.41	14	9 - Dairy 5 - C & F	3	108-S	100%	21 - first 20 - second 41	1,108.79	79.20 1,108.79
801-152	Communication Skills 2D	$14,031.17	31	1 - Food Manuf. - Dairy 30 - others	3	110-C	3.2%	15 - first 18 - second 33	1,275.56	41.15 41.15
801-152	Communication Skills 2E	$14,031.17	21	4 - Dairy 4 - C & F 13 - others	3	102-C	38.1%	15 - first 18 - second 33	1,275.56	60.74 485.92
809-110	Economics B	$9,888.05	18	7 - Dairy 4 - C & F 7 - others	3	102-C	61.1%	18 - first 15 - second 33	898.91	49.94 549.34

TABLE 2

REQUIRED COURSES – SECOND SEMESTER, YEAR 2

Course Number	Course Name	Instructor's Salary	Number of Students	Program Majors	Class Hours Per Week	Class-room	% of Course used for Food Manufacturing	No. of Course Hours taught by Instructor	Instructor Cost	
									Course	Student FM Student
065-113	Food Preservation 2	$13,324.55	8	8 - Food Manufacturing C & F	6	706	100%	19 - first 21 - second 40	1,998.68	249.84 1,998.68
065-122	Dairy Processing 2	$12,490.74	12	12 - Food Manufacturing Dairy	6	707	100%	15 - first 21 - second 36	2,081.79	173.48 2,081.79
065-106	Quality Control Canning and Freezing	$13,324.55	8	8 - Food Manufacturing C & F	7	707 (2) 706 (5)	100%	19 - first 21 - second 40	2,331.79	291.47 2,331.79
065-105	Quality Control Dairy	$12,490.74	13	13 - Food Manufacturing Dairy	7	707	100%	15 - first 21 - second 36	2,428.76	186.83 2,428.76
065-165	Food Manufacturing Technology Topics	$13,324.55	20	Food Manuf. 11 - Dairy 9 - C & F	3	706	100%	19 - first 21 - second 40	999.34	49.97 999.34

TABLE 3
ELECTIVE COURSES – SECOND SEMESTER

Course Number	Course Name	Instructor's Salary	Number of Students	Program Majors	Class Hours Per Week	Class-room	% of Course used for Food Manufacturing	No. of Course Hourse taught by Instructor	Instructor Cost	
									Course	Student FM Student
105-136	Office Management	$15,739.69	11	1 - Dairy 1 - C & E 9 - others	3	604	18.2%	22 - first 18 - second 40	1,180.48	107.32 214.63
809-147	Prevent Health Procedures	$12,490.74	11	8 - Dairy 3 - C & F	3	707	100%	15 - first 21 - second 36	1,040.90	94.63 1,040.90
101-123	Income Tax Accounting	$12,687.53	12	2 - Dairy 10 - others	3	203 (2) 208 (1)	16.7%	21 - first 17 - second 38	1,001.85	83.47 166.94
103-161	Machine Calculation 1B	$12,252.00	16	1 - Dairy 15 - others	3	AVT Lab	6.3%	37	496.70	31.04 31.04
104-175	Personal Development	$8,945.78	13	1 - Dairy 12 - others	2	202	7.7%	18 - first 18 - second 36	496.99	38.23 38.23
105-155	Business Internship 3	$16,517.64	31	1 - Dairy 30 - others	3		3.2%	37½	660.70	21.31 21.31
106-133	Typing 2	$12,252.00	13	1 - Dairy 12 - others	5	AVT Lab	7.7%	37	827.83	63.68 63.68
606-174	Statistics and Quality Control	$14,975.82	19	1 - Dairy 18 - others	3		5.3%	17 - first 18 - second 35	955.90	50.31 50.31

TABLE 4

REQUIRED COURSES – FIRST SEMESTER, YEAR 1

Course Number	Course Name	Instructor's Salary	Number of Students	Program Majors	Class Hours Per Week	Class-room	% of Course used for Food Manufacturing	No. of Course Hours taught by Instructor	Instructor Cost	
									Course	Student FM Student
065-100	Survey	$13,324.55	17	10 - Dairy 7 - C & F	2	706	100%	19 - first 21 - second 40	666.23	39.19 666.23
065-115	General Microbiology A	$12,490.74	10	7 - Dairy 3 - C & F	2 3	706	100%	15 - first 21 - second 36	693.93 1,040.90	69.39 693.93 65.06
065-102	Food Chemistry 1A	$13,324.55	9	5 - Dairy 4 - C & F	2 3	706	100%	19 - first 21 - second 40	666.23 999.34	74.03 666.23 52.60
065-102	Food Chemistry 1B	$13,324.55	10	6 - Dairy 3 - C & F 1 - other	3 2	706	90%	19 - first 21 - second 40	666.23	946.74 66.62 599.61
065-115	General Microbiology B	$12,490.74	6	2 - Dairy 4 - C & F	3 2	706	100%	15 - first 21 - second 36	693.93	1,040.90 115.66 693.93
105-102	Business Math A	$15,178.35	21	5 - Dairy 3 - C & F 13 - others	3	111-C	38.1%	21 - first 16 - second 37	1,230.68	58.60 468.83
801-151	Communication Skills 1A	$13,366.55	30	6 - Dairy 7 - C & F 17 - others	3	231-C	43.3%	17 - first ? - second	1,179.40	39.31 511.07
809-110	Economics A	$9,888.05	28	2 - Dairy 26 - others	3	102-C	3.6%	18 - first 15 - second 33	898.91	32.10 64.20
809-110	Economics B	$9,888.05	19	2 - Dairy 17 - others	3	102-C	10.5%	18 - first 15 - second 33	898.91	47.31 94.62

TABLE 5
REQUIRED COURSES – FIRST SEMESTER, YEAR 2

Course Number	Course Name	Instructor's Salary	Number of Students	Program Majors	Class Hours Per Week	Class-room	% of Course used for Food Manufacturing	No. of Course Hours taught by Instructor	Instructor Cost	
									Course	Student FM Student
065-112	Food Preservation 1	$13,324.55	8	8 - Food Manufacturing C & F	6	706	100%	19 - first 21 - second 40	1,998.68	249.84 1,998.68
065-121	Dairy Processing	$12,490.74	11	11 - Dairy	6	707	100%	15 - first 21 - second 36	2,081.79	189.25 2,081.79
065-103	Food Plant & Environmental Sanitation	$13,324.55	20	12 - Dairy 8 - C & F	4	706	100%	19 - first 21 - second 40	1,332.45	66.62 1,332.45
065-108	Dairy Marketing	$12,490.74	15	15 - Dairy 1 - C & F	2	707	100%	15 - first 21 - second 36	693.93	43.37 693.93
809-151	Psychology of Human Relations A	$10,748.06	38.	2 - Dairy 8 - C & F 28 - others	3	101-C	26.3%	17 - first 21 - second 38	848.53	22.33 223.30
809-151	Psychology of Human Relations B	$10,748.06	25	10 - Dairy 1 - C & F 14 - others	3	101-C (1) 103-C (2)	44%	17 - first 21 - second 38	848.53	33.94 373.35
809-151	Psychology of Human Relations C	$10,748.06	28	1 - Dairy 27 - others	3	101-C (1) 103-C (2)	3.6%	17 - first 21 - second 38	848.53	30.30 30.30
809-153	American Institutions A	$9,888.05	32	7 - C & F 25 - others	3	103-C	21.9%	18 - first 15 - second 33	898.91	28.09 196.64
809-153	American Institutions B	$9,888.05	25	11 - Dairy 14 - others	3	106-C	44%	18 - first 15 - second 33	898.91	35.96 395.52

TALBE 6

ELECTIVE COURSES – FIRST SEMESTER

Course Number	Course Name	Instructor's Salary	Number of Students	Program Majors	Class Hours Per Week	Class - room	% of Course used for Food Manufacturing	No. of Course Hours taught by instructor	Instructor Cost	
									Course	Student FM Student
105-105	Math for Business Analysis A	$9,831.03	19	1 - Dairy 3 - C & F 15 - others	3	208	21.1%	22 - first 19 - second 41	719.34	37.86 151.44
106-131	Typing 1	$12,252.00	23	1 - Dairy 1 - C & F 21 - others	5	AVT Lab	8.7%	37	827.83	35.99 71.99
809-160	Business Law 1A	$11,602.36	30	7 - C & F 23 - others	3	601	23.3%	20 - first 18 - second 38	915.98	30.53 213.73

FULL-TIME EQUIVALENT STUDENTS

DETERMINING FULL-TIME EQUIVALENT STUDENTS

To determine the cost and the benefit of a vocational-technical program it is first necessary to determine the number of full-time equivalent students. Due to MPTI offering courses and programs on both a full-time and part-time basis, a standard measurement is needed to distribute costs and benefits in order that they are applicable to both types of students. The measurement that has been developed for this purpose is a full-time equivalency (FTE). One full-time equivalent student equals a student who is enrolled in courses which total 15 course hours per week. In the case of the Food Manufacturing programs, most students are taking more than the required 15 course hours per week. Therefore, we find that each student in this program equals approximately 1.17 full-time equivalent students.[1]

The total number of full-time equivalent students in the Moraine Park VTAE District is 2,132. This figure has been obtained from the Moraine Park Technical Institute 1973-74 Budget pamphlet. It is a projected figure as the actual number of FTEs has yet to be determined.

Number of FTEs in the Food Manufacturing Programs

During the 1973-74 school year there were 37 students enrolled in the two Food Manufacturing Technology programs. These students represent 43.26 full-time equivalent students.

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[1]This figure is obtainable by dividing the total number of FTE students in the Food Manufacturing program by the actual number of students in the Food Manufacturing program (37).

By dividing the number of course hours per week for one semester (401) by fifteen (the number of course hours per week required for one FTE) we can obtain the number of FTEs in the Food Manufacturing Technology-Dairy program.[2] During the 1973-74 school year we find that there were 26.73 full-time equivalent students in this program. This figure represents 22 actual students enrolled in the program.

By similar means we can determine that there were 16.53 FTE students in the Food Manufacturing Technology-Canning and Freezing program (248 ÷ 15 = 16.53) during the 1973-74 school year.

By adding the number of FTEs in these two programs we arrive at our total figure of 43.26 full-time equivalent students.

These figures are used throughout the study in obtaining the costs and benefits of vocational-technical education.

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[2]This information is obtainable from the Course Matrix, pp. 9-14.

ECONOMIC COSTS

ECONOMIC COST INPUT

There are six major economic costs included in this study which are directly related to vocational-technical education. They are: 1) instructor cost; 2) building cost; 3) equipment cost; 4) student costs; 5) administrative costs, and 6) auxiliary service cost. These six costs will be determined in the following section and they will be totaled to arrive at one sum for the cost of the Food Manufacturing Technology programs.

There are numerous other economic costs which may be included in this type of an evaluation, such as the cost of living, the mobility of individual laborers, public assistance payments, G.I. bill benefits and scholarships, and the foregone productivity at home by the student. These costs are not included in this evaluation as it is very difficult to determine what effect they have on the costs of vocational education. For example, everybody is affected by the cost of living, and mobility may prove to be a help or a hindrance to a laborer.

Instructor Economic Costs

The following formula has been developed to determine the instructor input into the economic cost of the Food Manufacturing Technology programs.

$$\frac{\frac{I}{H} \times W}{N} \times FM = \$C$$

were
- I = Instructor salary
- H = number of weekly course hours he is teaching per year
- W = number of weekly course hours he is teaching in Course C
- N = total number of students in Course C
- FM = total number of Food Manufacturing students in Course C
- $C = Instructor cost for Food Manufacturing students in Course C.

By using this formula for each course listed on the program matrix and by totaling the cost for each of these individual courses we arrive at a total cost figure for instructors teaching students in the Food Manufacturing programs.

From the Course Matrix (see pp. 9-14) we arrive at a total cost for instructors teaching in the Food Manufacturing programs of $31,262.41. This figure is obtainable by adding the lower figures in the final column on the right.

From the prior section on Determining FTE students we have found that there are 43.26 FTEs in the Food Manufacturing programs. We divide this figure into $31,262.41 and arrive at a cost of $722.66 for each FTE in the Food Manufacturing program during the 1973-74 school year.

ECONOMIC COSTS - SCHOOL BUILDING

To determine the cost per FTE of the MPTI school building it is necessary to establish the initial capital outlay ($X) for the school building and the economic life of the building (T years). The fixed cost ($X) will be prorated over the economic life of the building in order to find the annual cost. Thus the annual cost equals $\frac{\$X}{T}$.

Added to this cost are the annual cost for maintenance, utilities, and custodial services for the building. This total figure is then separated into the amount of space used for instruction and the amount of space for auxiliary services. The cost of each will be determined and prorated according to their use by Food Manufacturing students. The results of this computation are presented in the following tables.

TABLE 7

Building Cost - MPTI - Fond du Lac

Individual Costs[3]		Totals
Building:	$902,300	
Land:	238,300	$1,240,600
Remodeling:	100,000	
Building Maintenance:	9,000	
Site Maintenance:	1,550	10,550 (1973-74)
Annual Utilities: (includes: heat, power, light and water)	23,044	24,702 (1973-74)
Custodial Salaries:	76,100	89,600 (1973-74)
General Supplies:	13,500	
	TOTAL	$1,365,452
Life Expectancy of Building		50 years
Number of FTEs (1973-74)		2,132
Number of FTEs in Food Manufacturing programs		43.26

[3]Figures obtained from the MPTI business office and available through computer printout.

TABLE 8

Cost Analysis - MPTI School Building

Building Cost per year ($1,240,600 ÷ 50 yrs.)	$ 24,812.00
Maintenance	10,550.00
Utilities	24,702.00
Custodial Service	89,600.00
Total[4]	$149,664.00
Instructional Space	30,617.34 sq. ft.
Auxiliary Space	24,965.15 sq. ft.
Total[5]	55,582.49 sq. ft.
Instructional Space Cost	$ 82,421.88
Auxiliary Space Cost	67,242.12
Total	$149,664.00

[4]Neglects property tax

[5]Vocational, Technical, and Adult District Ten, Status Study, May 1, 1971, appendix pages 28-33

TABLE 9

Instructional Space Cost

Classroom	Cost per Classroom[6]	Hrs. Classroom is used/week (total of 2 semesters)	Hours Used by Food Manuf. students	% of Usage - Food Manuf. students[7]	Cost/room - Food Manuf. programs
202	$ 2,328.30	62	.15	.24%	$ 5.59
203	2,287.92	61	.34	.56%	12.81
208	2,287.92	55	.80	1.45%	33.17
601	3,337.25	59	.70	1.19%	39.71
604	2,364.19	57	.55	.96%	22.70
706	2,185.39	50	50.00	100.00%	2,185.39
707	1,821.14	26	26.00	100.00%	1,821.14
AVT Lab	5,424.37	100	.99	.99%	53.70
TOTAL	22,036.48				$4,174.21

[6] sq. ft./room ÷ total sq. ft. x instructional space cost

[7] column four ÷ column three

TABLE 10

Calculated Cost - MPTI-Fond du Lac

Auxiliary Space Cost	Instructional Space Cost
$\frac{A}{N}$ = $FTE	$\frac{CR}{FM}$ = $FTE
where: A = auxiliary space cost N = total number of FTEs	where CR = cost per classroom FM = number of FTEs in the Food Manufacturing program

Through the usage of the above formula we find the auxiliary space cost to be $31.54 per FTE. This cost will not be included as part of the building cost, but it will be added to the cost for auxiliary services (see page 36).

According to the formula for instructional space cost we find that a total of $96.49 was spent for each FTE in the Food Manufacturing programs during the 1973-74 school year.

In addition to taking courses at the MPTI-Fond du Lac campus, students enrolled in the Food Manufacturing programs also attend classes at the University of Wisconsin Center-Fond du Lac, Wisconsin. A charge of $1.25 per student for the rental of this facility is issued to MPTI for each credit hour the student is receiving while attending classes at the University of Wisconsin Center. The following table shows the classroom usage at UWC-FDL Food Manufacturing students. By taking the total credit hours for Food Manufacturing students multiplied by the $1.25 charge; and divided by the 43.26 FTEs in the Food Manufacturing program, we arrive at a cost of $8.58 per FTE. This figure is included in the building cost.

TABLE 11

Classroom Usage - University of Wisconsin Center-FDL

Room	No. of Students	Credit Hours	Total Credits Charged
10-C	10	3	30
10-C	23	3	69
10-C	19	3	57
106-C	11	3	33
108-C	14	3	42
110-C	1	3	3
171-C	8	3	24
231-C	13	3	39
Total	99	X 3	297

ECONOMIC COST - EQUIPMENT

To determine the economic cost of classroom equipment for Food Manufacturing students it is first necessary to inventory all equipment for each classroom used by Food Manufacturing students. (See Appendices A-1 to A-4). This inventory should include the initial cost of the equipment and the date of purchase.

The economic life of the equipment is to be determined from an instructional point of view. In this report, an instructional economic life of 10 years has been selected. In the case where no deterministic estimate of the value of equipment can be made due to changing technology, three estimates namely pessimistic, most likely, and optimistic estimates will be made and the average computed by using Beta distribution.

Accordingly, the average remaining life is equal to:

$$\frac{\text{pessimistic} + 4 \text{ most likely} + \text{optimistic}}{6}$$

The initial cost of the equipment is distributed over the economic life of the equipment to determine the value or cost of the equipment per year.

The total hours of all courses taught in the classroom is determined along with the total hours the classroom is used by Food Manufacturing students in order to establish the percent of usage of classroom equipment by Food Manufacturing students.

The economic equipment cost for Food Manufacturing students is obtained by the following formula:

$$\frac{\text{Cost of Equipment per year}}{\text{Percent of time equipment is used by Food Manufacturing Students}}$$

A summary of the equipment cost for Food Manufacturing students during the 1973-74 school year is presented in the following table.

The total cost ($4,272.98) is divided among the 43.26 FTEs in the Food Manufacturing program and a cost of $98.77 is obtained for each FTE in this program.

TABLE 12

Economic Cost - Equipment

Room	Initial Cost[8] of Equipment	Cost per year for equipment	% of Usage of equipment by Food Manufacturing Students	Cost of equipment for Food Manufacturing Students
202	$ 2,779.05	$ 277.91	.24%	$ .67
203	1,595.84	159.84	.56%	.90
208	2,185.59	218.56	1.45%	3.17
601	3,098.75	305.88	1.19%	3.64
604	1,686.25[9]	168.63	.96%	1.62
706	14,396.08	1,439.61	100.00%	1,439.61
707	13,397.23	1,339.72	100.00%	1,339.72
AVT Lab	35,000.00	3,500.00	.99%	34.65

[8]Estimated cost according to available information

[9]Excludes the cost of sewing machines located in this classroom

STUDENT ECONOMIC COST

There are three individual inputs into the student economic costs for the Food Manufacturing programs. They are the cost for travel or lodging; the cost for activities, registration, books and supplies, and the cost of foregone earnings due to attending school. These three inputs combine to a total of $12,331.70 per FTE in the Food Manufacturing program.

The cost for travel and lodging are based on figures obtainable in the MPTI 1974-76 catalog. The travel cost is an estimate based on $ .13 per mile for travel and computed by multiplying the number of miles the student lives from MPTI by 2 (to and from school), by the $ .13/mile travel allowance, and by the total number of school days per year (176). Lodging costs are based on an average rental fee of $760.00 per year. By combining the average cost of travel and lodging for Food Manufacturing students for the 1973-74 school year we obtain a figure of $768.96 per student; transposed to FTEs, this total becomes $899.06. (See Tables 13 and 15.)

The costs for activities, registration, books, and supplies are computed separately for the Food Manufacturing-Dairy and the Food Manufacturing-Canning & Freezing programs. Registration costs are $15 per student, activity fees are $10 per student. Book and supply costs vary according to courses. A summation of these costs is presented in Table 14. By transposing the costs presented in this table from students to FTEs we arrive at a cost of $208.08/FTE for the Food Manufacturing-Dairy program and $193.20/FTE for the Food Manufacturing-Canning & Freezing program. This averages out to be $200.64 per FTE.

TABLE 13

Travel Cost for 1974 Food Manufacturing Graduates

Community	Miles to MPTI	Cost per Year ($ .13/mile)
Fox Lake	29	$ 1,327.04
Green Lake	28	1,281.28
Fair Water	25	1,144.00
Waupun	17	777.92
Mayville	26	1,189.76
Ripon	21	960.96
Ripon	21	960.96
Glenbula	19	869.44
Empire	0	--
Millersburg, Ohio	-	--
Sugarcreek, Ohio	-	--
Sheboygan Falls	36	1,647.36
Fond du Lac	0	--
Fond du Lac	0	--
Lomira	16	732.16
Fond du Lac	0	--
	TOTAL	$10,890.88

TABLE 14

Registration, Activity, Books, and Supply Costs

Costs [10]	Food Manufacturing Dairy	Food Manufacturing Canning & Freezing
Registration	$ 15.00	$ 15.00
Student Activities	10.00	10.00
Supplies	33.00	38.50
Books	119.97	101.75
TOTAL	$177.97	$165.25

[10] Cost per student head.

NOTE: The cost of tuition is omitted in this evaluation. If it was to be included it would raise the cost by $375. However, students are not required to pay tuition unless they come from outside Wisconsin and for this reason tuition has been neglected.

The final cost to be calculated in regard to students is the cost of foregone earnings caused by attendance in school. Numerous methods are available for computing this cost. Basically, this task involves determining an average annual salary for high school graduates beginning in the labor market. This salary can be estimated in many ways, as by taking the minimum wage, by taking the average earnings of a high school graduate in the community, by taking the entry level wage rate for high school graduates, etc. For our purposes, we have chosen an annual wage of $6,240 based on a wage rate of $3.00 per hour for 52 weeks of forty hours each. At this rate a student's loss in earnings is $12,480.00 during the two-year period required to complete the Food Manufacturing program. However, MPTI students have the opportunity to earn money while attending school during their summer vacation. At the same $3.00 per hour over a 12-week period during the summer, a student may earn $1,440, which over the same two-year period equals $2,880. Thereby, the average estimated foregone earnings is $12,480 minus $2,880, or, $9,600. This figure, transposed to FTEs by multiplying it by 1.17, equals $11,232 or $5,616 per year.

TABLE 15

Student Economic Cost

Type of Cost	Amount per FTE	
Travel	$ 909.54	$ 899.06
Lodging	888.58	
Registration	17.54	200.64
Activities	11.69	
Supplies	41.80	
Books	129.62	
Foregone Earnings	5,616.00/yr.	11,232.00
	TOTAL	$12,331.70

AUXILIARY SERVICE COST

The cost of auxiliary services includes such areas as the school library, the main office in the school, the data processing center, and the student services areas which includes the counselors and the registrar. The cost for the building, for equipment, and for salaries in each of these above areas is determined in the following table. The total cost of $447,976.69, divided by 2,132 FTEs for the 1973-74 school year, equals $210.12 per FTE.

TABLE 16

Auxiliary Service Cost

Type of Cost	Amount	Total
Building (24,965.15 sq. ft.)	$ 67,242.12	$ 67,242.12
Equipment	88,849.57	88,849.57
Salaries		
Library	42,216.00	
Audio-Visual	24,364.00	
Student Services	107,099.00	291,885.00
Main Office	72,502.00	
Data Processing	45,704.00	
		$447,976.69

ADMINISTRATIVE COST

The final cost to be computed in this study is the economic cost of the administration. This cost is computed by adding the maintenance cost, the cost of utilities, custodial service cost, and the cost for salaries for the Moraine Park Technical Institute District Office. The total of these above costs equals $611,749.00. This cost divided by 2,132 equals $286.94 per FTE. These costs are computed in the following table.

TABLE 17

District Office Cost

Individual Costs		Total
Building		
Building	$175,000.00	
Land	cost is in with school building	$175,000.00
Remodeling	0.00	
Maintenance		
Building	0.00	
Site	1,100.00	1,100.00
Utilities		
Heat, Power & Light, Water	5,413.00	5,413.00
Custodial Services		
Salaries	2,975.00	
General Supplies	150.00	3,125.00
Salaries		
Field Services	151,955.00	
Instruction & Special Projects	68,440.00	
Business Office	126,251.00	
Duplication Center	15,162.00	427,111.00
Research Department	32,050.00	
Word Processing	33,253.00	
		$611,749.00

ECONOMIC BENEFITS

ECONOMIC BENEFIT INPUTS

To balance out the economic costs of vocational education, a number of economic benefits are to be determined. They include the increased earnings of a MPTI graduate over a high school graduate, the increased employment rate of a technical school graduate over a nonvocational-technical school graduate, and the increased income to society by means of taxation due to the higher earning capacity of an MPTI graduate.

ECONOMIC BENEFIT - INCREASED EARNINGS

The average earnings of an MPTI Food Manufacturing graduate is $714 per month or $8,568 per year.[11] Comparing these wages to the estimated wage of $3.00 per hour for high school graduates with two to five years' experience, an MPTI Food Manufacturing graduate earns an average of $2,328 per year more than a comparable person without any post high school education. According to this standard, a Food Manufacturing graduate would be required to work four years and two months to acquire his foregone earnings caused by attendance at MPTI and from that point on, he would continue to earn a salary at an increase of 27% over the $3.00/hour wage rate assigned to a high school graduate. It must be remembered that this case is only a hypothetical assumption and that over a lifetime the wages of a high school graduate will proximate those of a MPTI Food Manufacturing graduate due to on-the-job training and labor union effectiveness.

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[11] The Moraine Park Technical Institute. Followup Study, The LINK. 1973, 1974.

EMPLOYMENT VS. UNEMPLOYMENT

The lower the unemployment rate, the higher are the benefits to both society and to the individual. The following table evaluates the unemployment rate for both MPTI Food Manufacturing graduates and for society in general. It shows a lower unemployment rate for MPTI Food Manufacturing graduates. The economic benefits derived from this are presently incalcuable due to the lack of reliable figures which are obtainable to this researcher. An expanded longitudinal study comparing a sample group of MPTI Food Manufacturing graduates with a sample of high school graduates over a working lifetime (up to age 65) would be necessary to determine the percent of time unemployed by either group and to the reason for and the economic effects of such unemployment.

TABLE 18

Employment Vs. Unemployment

Food Manufacturing Technology Graduate		General
Number responding	14	
Employed in related occupation	11	Average unemployment rate in the state of Wisconsin
Not in labor market (marriage, school, etc.)	3	
Unemployed or employed in unrelated job	0	
Unemployment Rate = 0%		Unemployment Rate = 5.5%

ECONOMIC BENEFIT - INCOME TAX REVENUES

A comparison is made of a high school graduate entering the labor market upon graduation with a high school graduate attending MPTI for two years in the Food Manufacturing Technology-Canning and Freezing program. This comparison is based on an assumption and it forms a hypothetical case. However, all figures that are used are correct with the only figure estimated being the beginning salary of a high school graduate in the labor market. The salary of the MPTI graduate is obtained from the MPTI followup study, The LINK, and the tax figures are taken from 1973 tax tables based on the assumed yearly earnings presented in Table 19 (see Appendices B-1 and B-2).

TABLE 19

Income Tax Revenues

High School Graduate - no vocational training		MPTI Graduate - Food Manufacturing program	
YEAR ONE		YEAR ONE	
Beginning Salary	$ 2.50/hr	Beginning Salary	$ 2.50/hr
Total Income (40 hr/wk., 52 wks/yr.)	5,200.00	Working Time (summer)	12 weeks
Wisconsin Tax (no deductions)	215.10	Total Income	1,200.00
Federal Tax (1 exemption, standard deduction)	524.00	Total Tax	0
Total Taxes	739.10		
YEAR TWO		YEAR TWO	
Beginning Salary (3% increase estimated due to labor union effectiveness and on-the-job training)	2.58/hr	Salary	2.50/hr
		Working Time	12 weeks
Total Income	5,366.40		
Wisconsin Tax	223.90	Total Income	1,200.00
Federal Tax	562.00		
Total Tax	785.90	Total Tax	0
Total Tax - 2 years	1,525.00	Tax Loss to society	1,525.00
YEAR THREE		YEAR THREE	
Beginning Salary (3% increase)	2.66/hr	Annual Income	714.00/mo 8,568.00/yr
Total Income	5,532.80		
Wisconsin Tax	234 60	Wisconsin Tax (no deductions)	449.10
Federal Tax	590.00	Federal Tax (1 exemption, standard deduction	1,236.00
Total Tax	824.60		
Total Tax - 3 years	2,349.60	Total Tax	1,685.10

High School Graduate - no vocational training		MPTI Graduate - Food Manufacturing program	
YEAR FOUR		YEAR FOUR	
Beginning Salary	$ 2.75/hr	Annual Income	$8,568.00
Total Income	5,720.00		
Wisconsin Tax	245.20	Wisconsin Tax	449.10
Federal Tax	628.00	Federal Tax	1,236.00
Total Tax	873.20	Total Tax	1,685.10
Total Tax - 4 years	3,222.80	Total Tax - 4 years	3,370.20
	Tax Loss equals	Tax Gain	
YEAR FIVE		YEAR FIVE	
Salary	3.00/hr	Annual Income	8,568.00/yr
Annual Income	6,240.00/yr		
Wisconsin Tax	278.60	Wisconsin Tax	449.10
Federal Tax	727.00	Federal Tax	1,236.00
Total Tax	1,005.60	Total Tax	1,685.10
		Tax Gain - 1 year	679.50

Going on the assumption that the salary for both the MPTI graduate of the Food Manufacturing program and the nongraduate of MPTI will increase at an equal rate after this five-year period, an income gain to society through taxation will be approximately $675 per year. If both persons are 23 years of age after this five-year time period (18 years old at the time of high school graduation), they will have a working life of 42 years remaining (age 65 at retirement). This leaves society with a net tax gain of $28,350.

A number of variables to be considered in this evaluation would be the number of tax deductions allowed due to marriage and raising a family, home ownership, the percent of time unemployed, the actual annual salary depending on place of employment, mobility, etc.

COST BENEFIT RATIO

COST BENEFIT RATIO

The following table summarizes the economic costs and the economic benefits derived during this study. The total cost per year for one FTE equals $8,130.70 while the economic benefits obtained by attending classes in a Food Manufacturing Program equals $5,335.50 per year. Accordingly, one can easily determine the economic benefits of a vocational-technical education in the area of Food Manufacturing are well worth the cost of this education.

TABLE 20

Total Costs Vs. Total Benefits

Economic Costs/FTE		Economic Benefits/FTE	
1. Instructor	$ 722.66	1. Increased Earnings	$2,328.00
2. Student	1,094.14	2. Unemployment	--
Foregone Earnings	5,616.00	3. Tax Revenue	679.50
3. Building	96.49	4. Increased productivity to society	2,328.00
UW Center-FDL	8.58		
4. Equipment	98.77		
5. District Office	286.94		
6. Auxiliary Services	210.12		
TOTAL	$8,133.70	TOTAL[12]	$5,335.50

[12]This total is a yearly total. The benefits are increased according to the number of years during the working lifetime of a laborer.

SUMMARY
&
CONCLUSION

SUMMARY

An evaluation of the economic costs and the economic benefits of the two Food Manufacturing Technology programs offered by the Moraine Park Technical Institute has been completed. In total, six separate cost inputs and four benefit inputs were determined. These costs and benefits have been established on the basis of full-time equivalent students. The results of these different costs and benefits have been totaled and are presented in tabular form. This table shows that the economic benefits of a vocational-technical education are far greater than the economic cost incurred.

CONCLUSION

This Cost Benefit Study, although short in duration, has provided for a number of suggestions or recommendations for conducting further studies along this line. The majority of these suggestions are associated with problem areas encountered in conducting this present study.

Perhaps the major problem encountered was obtaining accurate information on the different cost aspects in order to provide an adequate cost figure once the study was completed. All of the information to compute costs is available; however, the sources of this information are few and in most cases the statistics for recent years are projected. It is suggested, therefore, that once the required information has been established for conducting Cost Benefit Studies, that this information be made available on computer programs. This would provide for a fast, readily available source for conducting this type of a study.

In reviewing the economic costs determined in this study, it is felt that they provide an adequate appraisal of the costs of a vocational-technical program. There are costs which are not economic in nature and they possibly should be included along with the economic cost aspect. The major cost in this category is the effect caused by school attendance on the atmosphere in the home. This could include such ideas as foregone leisure at home, less communication with one's family, and problems created by changing one's schedule to accommodate attending school. These costs should be evaluated to determine if they are of importance and if they should be included in the cost aspect of a cost benefit evaluation.

On the other hand, few benefits of a vocational-technical education are economic in nature. The major ones: additional productivity, tax

revenues, and increased income for the individual have been included in this report.

In addition to economic benefits there are numerous noneconomic benefits associated with the completion of a vocational-technical program. However, they are very difficult to measure and to compare with the cost aspects. These noneconomic benefits include: 1) increased social interaction, 2) being a better citizen, 3) less crime, 4) being a better consumer of goods, 5) attitude changes, 6) increased job satisfaction, 7) increased mobility, and 8) the displacement, vacuum, or multiplier effect.

It is suggested in further Cost Benefit Studies that these noneconomic benefits be evaluated. This will allow for a more accurate comparison of costs to benefits. Also, a standard measurement for determining non-economic benefits should be developed. Perhaps the best method for this would be a personal interview with both graduates of a vocational-technical program and with individuals having no vocational training. Results of these interviews could be analyzed and placed on a scale developed to compute all of the necessary information.

It is recommended that the method developed for evaluating the costs and the benefits of a vocational-technical program be universal for all programs. It has been the attempt of this study to maintain basic information in determining the costs and benefits of the Food Manufacturing Technology programs in the hope that this method would be universal for all programs.

At the beginning of this study the researcher began to compute all costs and benefits for individual students. However, through discussions with business office personnel, a change was made from determining the

cost per student trainee to determining the cost per full-time equivalent student (FTE). It is more beneficial to compute the cost per FTE in a technical school setting as this is the common measurement presently being used. Yet, it should be pointed out that by determining costs and benefits for FTEs, the costs of a vocational education are decreased. This is due to one full-time student being equal to more than one FTE. In this case, one Food Manufacturing student is equal to 1.17 FTEs.

The final suggestion that can be made is to maintain consistency in determining costs and benefits. It is unjust to compute the cost of a vocational-technical program for one year and in that same year to contact former students to obtain the benefits they have derived from their completion of a program at a technical institute. This may prove to be a weakness in this present evaluation. For example, all costs presented in this study are based on the 1973-74 school year. The benefits, however, are based on an assumption, as it would not be beneficial to evaluate the benefits received by June, 1974 graduates of MPTI as they have been out of school only for a short period of time.

It may prove to be more beneficial to determine the costs for the 1971-72 school year as all costs would be determined for that year and to compare these costs to the benefits received by graduates of that same year.

APPENDIX

Appendix A

The following charts are an excerpt from the equipment inventory taken prior to determining the economic cost of equipment in this study.

Appendix A-1

Equipment, Room 208

EQUIPMENT	COST	YEAR PURCHASED
Cassette	39.95	1970
Overhead Projector	99.50	1971
Cart	31.64	1971
Desk (26)	1,742.00	1968
Desk	26.50	1966
Desk	67.00	1973
Swivel Chair	28.75	1958
Swivel Chair	32.00	1968
Swivel Chair	28.75	1958
Swivel Chair	28.75	1958
Swivel Chair	32.00	1968
Swivel Chair	28.75	1958
TOTAL	$2,185.59	

Appendix A-2

Equipment, Room 604

EQUIPMENT	COST	YEAR PURCHASED
Table (6)	150.00	1932
Table (3)	102.75	1941
Steps/Rail Mold.	20.00	1973
Air Conditioner	490.00	1972
Hall	21.00	1973
Chair (8)	108.00	1960
Chair (4)	30.00	1945
Chair (7)	94.50	1964
Miscellaneous	670.00	(61-70) 1966
TOTAL	$1,686.25	

Appendix A-3

Equipment, Room 706

EQUIPMENT	COST	YEAR PURCHASED
Lab Cart	69.50	1971
Incubator	30.37	1970
Pump Vacuum	237.50	1967
Pump Vacuum	237.50	1967
Cart	57.00	1973
Cart	89.55	1972
Stool	21.16	1964
Stool	21.16	1964
Stool	21.16	1964
Stool	21.16	1964
Cabinet	154.00	1967
Cabinet	72.65	1964
Cabinet	24.00	1971
Cabinet	24.00	1971
Cabinet	40.00	1956
Cabinet	93.50	1966
Cabinet	40.00	1950
Stool	21.16	1964
Stool	21.16	1964
Stool	21.16	1964
Stool	21.16	1964
Stool	21.16	1964

EQUIPMENT	COST	YEAR PURCHASED
Stool	21.16	1964
"	25.00	1968
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
"	21.16	1964
Stand	77.00	1958
Overhead Projector	140.00	1972
Cart	28.80	1973
Mixer	34.50	1969
Lectern	18.00	1973
Stool	.33	1965
Chair Stack	6.85	1965
Table	45.00	1965
Cabinet Micro	427.00	1973
Food Cart	43.00	1971

EQUIPMENT	COST	YEAR PURCHASED
Hot Plate	40.00	1973
Tool Cart	6.25	1959
Pneumatic Control	193.00	1973
Pump	94.50	1966
Sterilizer	180.00	1973
Separator	900.00	1973
Scale	97.34	1971
Scale	34.50	1969
Microscope	720.00	1969
Microscope	229.50	1969
Microscope	294.00	1973
Extinguisher	65.00	1965
Microscope	229.50	1969
Microscope	359.00	1971
Screen Wall	14.00	1964
Indicator	31.94	1971
Bore Cork	53.90	1972
Sealer	237.83	1970
Scale	32.50	1970
Microscope	624.60	1972
Balance	679.00	1973
Tempscribe	110.00	1973
Scale	2,351.00	1973
Scale Balance	67.00	1973
Microscope	358.00	1970
Microscope	253.00	1970

EQUIPMENT	COST	YEAR PURCHASED
Microscope	359.00	1971
Comparator	10.00	1966
Microscope	229.50	1969
Lamp Microscope	47.00	1973
" "	47.00	1973
" "	229.50	1969
" "	294.00	1973
" "	35.00	1933
Counter Colony	124.48	1968
" "	107.00	1971
" "	107.00	1971
Balance	375.00	1969
Spectrophometer	475.00	1969
Compari Kit	17.35	1966
Register	270.00	1973
Microscope	612.00	1970
Microscope	279.00	1972
TOTAL	$14,396.08	

Appendix A-4

Equipment, Room 707

EQUIPMENT	COST	YEAR PURCHASED
File	1.25	1925
Lectern	18.00	1973
Fire Extinguisher	65.00	1965
Steriljzer	2,520.00	1973
Fire Extinguisher	54.70	1966
Scale	560.00	1973
Cabinet	81.00	1973
Centrifuge	196.00	1973
Centrifuge	165.00	1970
Refrigerator	485.00	1970
Motor	300.00	1973
Incubator	382.00	1973
Viscometer	5,040.00	1973
Cabinet Temperature	166.00	1973
Refrigerator	248.00	1966
Stool	49.00	1973
"	49.00	1973
"	49.00	1973
"	49.00	1973
"	49.00	1973
"	49.00	1973
Chamber	429.00	1973

EQUIPMENT	COST	YEAR PURCHASED
Stool	8.00	1965
"	8.00	1965
"	.33	1965
PH Meter	335.00	1969
Scale	80.00	1973
Fan	20.00	1973
File	1.25	1925
Furnace	294.00	1973
Slide Warmer	75.00	1972
Test Tube Cleaner	187.00	1973
Media Dispenser	395.00	1972
Bacticinerator	50.40	1972
Pyromagnestor	45.00	1973
Bacticinerator	50.40	1972
Sterilizer	487.00	1973
Hotplate	67.00	1973
"	67.00	1973
"	67.00	1973
Blender	39.95	1972
"	39.95	1972
Magazine Rack	75.00	1966
TOTAL	$13,397.23	

Appendices B-1 and B-2 are a copy of the Wisconsin and the Federal Tax Tables that were used to compute tax rates in this study.

Appendix B-1

TAX TABLE

1973

If Net Taxable Income is		GROSS TAX IS	If Net Taxable Income is		GROSS TAX IS	If Net Taxable Income is		GROSS TAX IS	If Net Taxable Income is		GROSS TAX IS
AT LEAST	BUT LESS THAN		AT LEAST	BUT LESS THAN		AT LEAST	BUT LESS THAN		AT LEAST	BUT LESS THAN	
$ 0	$ 50	$ 80	$ 3,720	$ 3,760	$ 136.50	$ 6,270	$ 6,300	$ 280.50	$ 8,325	$ 8,350	$ 430.70
50	100	2.30	3,760	3,800	138.40	6,300	6,330	282.50	8,350	8,375	432.70
100	150	3.90	3,800	3,840	140.40	6,330	6,360	284.40	8,375	8,400	434.80
150	200	5.40	3,840	3,880	142.30	6,360	6,390	286.40	8,400	8,425	436.80
200	250	7.00	3,880	3,920	144.20	6,390	6,420	288.30	8,425	8,450	438.90
250	300	8.50	3,920	3,960	146.10	6,420	6,450	290.30	8,450	8,475	441.00
300	350	10.10	3,960	4,000	148.00	6,450	6,480	292.20	8,475	8,500	443.00
350	400	11.60	4,000	4,035	149.90	6,480	6,510	294.20	8,500	8,525	445.00
400	450	13.20	4,035	4,070	151.80	6,510	6,540	296.10	8,525	8,550	447.10
450	500	14.70	4,070	4,105	153.70	6,540	6,570	298.10	8,550	8,575	449.10
500	550	16.30	4,105	4,140	155.60	6,570	6,600	300.00	8,575	8,600	451.20
550	600	17.80	4,140	4,175	157.50	6,600	6,630	302.00	8,600	8,625	453.20
600	650	19.40	4,175	4,210	159.40	6,630	6,660	303.90	8,625	8,650	455.30
650	700	20.90	4,210	4,245	161.30	6,660	6,690	305.90	8,650	8,675	457.30
700	750	22.50	4,245	4,280	163.20	6,690	6,720	307.80	8,675	8,700	459.40
750	800	24.00	4,280	4,315	165.10	6,720	6,750	309.80	8,700	8,725	461.40
800	850	25.60	4,315	4,350	167.00	6,750	6,780	311.70	8,725	8,750	463.50
850	900	27.10	4,350	4,385	168.80	6,780	6,810	313.70	8,750	8,775	465.50
900	950	28.70	4,385	4,420	170.70	6,810	6,840	315.60	8,775	8,800	467.60
950	1,000	30.20	4,420	4,455	172.60	6,840	6,870	317.60	8,800	8,825	469.60
1,000	1,050	31.80	4,455	4,490	174.50	6,870	6,900	319.50	8,825	8,850	471.70
1,050	1,100	33.60	4,490	4,525	176.40	6,900	6,930	321.50	8,850	8,875	473.70
1,100	1,150	35.30	4,525	4,560	178.30	6,930	6,960	323.40	8,875	8,900	475.80
1,150	1,200	37.00	4,560	4,595	180.20	6,960	6,980	325.10	8,900	8,925	477.80
1,200	1,250	38.70	4,595	4,630	182.10	6,980	7,000	326.40	8,925	8,950	479.90
1,250	1,300	40.40	4,630	4,665	184.00	7,000	7,025	328.00	8,950	8,975	481.90
1,300	1,350	42.10	4,665	4,700	185.90	7,025	7,050	329.90	8,975	9,000	484.00
1,350	1,400	43.80	4,700	4,735	187.70	7,050	7,075	331.80	9,000	9,020	486.90
1,400	1,450	45.50	4,735	4,770	189.60	7,075	7,100	333.70	9,020	9,040	487.70
1,450	1,500	47.20	4,770	4,805	191.50	7,100	7,125	335.60	9,040	9,060	489.[illegible]
1,500	1,550	48.90	4,805	4,840	193.40	7,125	7,150	337.50	9,060	9,080	491.20
1,550	1,600	50.60	4,840	4,875	195.30	7,150	7,175	339.40	9,080	9,100	492.90
1,600	1,650	52.30	4,875	4,910	197.20	7,175	7,200	341.30	9,100	9,120	494.70
1,650	1,700	54.00	4,910	4,945	199.10	7,200	7,225	343.20	9,120	9,140	496.40
1,700	1,750	55.70	4,945	4,980	201.00	7,225	7,250	345.10	9,140	9,160	498.20
1,750	1,800	57.40	4,980	5,010	202.90	7,250	7,275	347.00	9,160	9,180	500.00
1,800	1,850	59.10	5,010	5,040	204.50	7,275	7,300	348.90	9,180	9,200	501.70
1,850	1,900	60.80	5,040	5,070	206.20	7,300	7,325	350.80	9,200	9,220	503.50
1,900	1,950	62.50	5,070	5,100	208.00	7,325	7,350	352.70	9,220	9,240	505.20
1,950	2,000	64.20	5,100	5,130	209.80	7,350	7,375	354.60	9,240	9,260	507.00
2,000	2,050	65.90	5,130	5,160	211.60	7,375	7,400	356.50	9,260	9,280	508.80
2,050	2,100	67.70	5,160	5,190	213.30	7,400	7,425	358.40	9,280	9,300	510.50
2,100	2,150	69.50	5,190	5,220	215.10	7,425	7,450	360.30	9,300	9,320	512.30
2,150	2,200	71.30	5,220	5,250	216.90	7,450	7,475	362.20	9,320	9,340	514.00
2,200	2,250	73.10	5,250	5,280	218.60	7,475	7,500	364.10	9,340	9,360	515.80
2,250	2,300	74.90	5,280	5,310	220.40	7,500	7,525	366.00	9,360	9,380	517.60
2,300	2,350	76.70	5,310	5,340	222.20	7,525	7,550	367.90	9,380	9,400	519.30
2,350	2,400	78.50	5,340	5,370	223.90	7,550	7,575	369.80	9,400	9,420	521.10
2,400	2,450	80.30	5,370	5,400	225.70	7,575	7,600	371.70	9,420	9,440	522.80
2,450	2,500	82.10	5,400	5,430	227.50	7,600	7,625	373.60	9,440	9,460	524.60
2,500	2,550	83.90	5,430	5,460	229.30	7,625	7,650	375.50	9,460	9,480	526.40
2,550	2,600	85.70	5,460	5,490	231.00	7,650	7,675	377.40	9,480	9,500	528.10
2,600	2,650	87.50	5,490	5,520	232.80	7,675	7,700	379.30	9,500	9,52[illegible]	529.90
2,650	2,700	89.30	5,520	5,550	234.60	7,700	7,725	381.20	9,520	9,54[illegible]	531.60
2,700	2,750	91.10	5,550	5,580	236.30	7,725	7,750	383.10	9,540	9,560	533.40
2,750	2,800	92.90	5,580	5,610	238.10	7,750	7,775	385.00	9,560	9,580	535.20
2,800	2,850	94.70	5,610	5,640	239.90	7,775	7,800	386.90	9,580	9,600	536.90
2,850	2,900	96.50	5,640	5,670	241.60	7,800	7,825	388.80	9,600	9,620	538.70
2,900	2,950	98.30	5,670	5,700	243.40	7,825	7,850	390.70	9,620	9,640	540.40
2,950	3,000	100.10	5,700	5,730	245.20	7,850	7,875	392.60	9,640	9,660	542.20
3,000	3,040	102.00	5,730	5,760	247.00	7,875	7,900	394.50	9,660	9,680	544.00
3,040	3,080	103.90	5,760	5,790	248.70	7,900	7,925	396.40	9,680	9,700	545.70
3,080	3,120	105.90	5,790	5,820	250.50	7,925	7,950	398.30	9,700	9,720	547.50
3,120	3,160	107.70	5,820	5,850	252.30	7,950	7,975	400.20	9,720	9,740	549.20
3,160	3,200	109.60	5,850	5,880	254.00	7,975	8,000	402.10	9,740	9,760	551.00
3,200	3,240	111.60	5,880	5,910	255.80	8,000	8,025	404.00	9,760	9,780	552.80
3,240	3,280	113.50	5,910	5,940	257.60	8,025	8,050	406.10	9,780	9,800	554.50
3,280	3,320	115.40	5,940	5,970	259.30	8,050	8,075	408.10	9,800	9,820	556.30
3,320	3,360	117.30	5,970	6,000	261.10	8,075	8,100	410.20	9,820	9,840	558.00
3,360	3,400	119.20	6,000	6,030	263.00	8,100	8,125	412.20	9,840	9,860	559.80
3,400	3,440	121.20	6,030	6,060	264.90	8,125	8,150	414.30	9,860	9,880	561.60
3,440	3,480	123.10	6,060	6,090	266.90	8,150	8,175	416.30	9,880	9,900	563.30
3,480	3,520	125.00	6,090	6,120	268.80	8,175	8,200	418.40	9,900	9,920	565.10
3,520	3,560	126.90	6,120	6,150	270.80	8,200	8,225	420.40	9,920	9,940	566.80
3,560	3,600	128.80	6,150	6,180	272.70	8,225	8,250	422.50	9,940	9,960	568.60
3,600	3,640	130.80	6,180	6,210	274.60	8,250	8,275	424.60	9,960	9,980	570.40
3,640	3,680	132.70	6,210	6,240	276.60	8,275	8,300	426.60	9,980	10,000	572.10
3,680	3,720	134.60	6,240	6,270	278.60	8,300	8,325	428.60			

Tax on incomes of $10,000 and over

If Net Taxable Income is		Gross Tax is	If Net Taxable Income is		Gross Tax is
At Least	But Less Than	This amt. + this % on excess over	At Least	But Less than	This amt. + this % on excess over
$ 10,000 -	$ 11,000	$ 573.00 plus 9.3% - $ 10,000	$ 12,000 -	$ 13,000	$ 765.00 plus 10.5% - $ 12,000
11,000 -	12,000	666.00 plus 9.9% - 11,000	13,000 -	14,000	870.00 plus 11.1% - 13,000
			14,000	-----	981.00 plus 11.4% - 14,000

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FEDERAL TAX TABLE

Table 1 —Returns claiming ONE exemption (and not itemizing deductions)

If line 15 (adjusted gross income) is—		And you are—				If line 15 (adjusted gross income) is—		And you are—				If line 15 (adjusted gross income) is—		And you are—			
At least	But less than	Single, not head of household	Head of household	Married filing separate return claiming— Low income allowance	Married filing separate return claiming— %Standard deduction	At least	But less than	Single, not head of household	Head of household	Married filing separate return claiming— Low income allowance	Married filing separate return claiming— %Standard deduction	At least	But less than	Single, not head of household	Head of household	Married filing separate return claiming— Low income allowance	Married filing separate return claiming— %Standard deduction
		Your tax is—						Your tax is—						Your tax is—			
$0	$875	$0	$0	$0	$0	$2,750	$2,775	$102	$100	$203	$242	$5,250	$5,300	$737	$703	$883	$818
875	900	0	0	0	1	2,775	2,800	106	103	207	245	5,300	5,350	748	712	894	828
900	925	0	0	0	4	2,800	2,825	109	107	211	249	5,350	5,400	758	722	905	837
925	950	0	0	0	7	2,825	2,850	113	110	215	253	5,400	5,450	769	731	916	846
950	975	0	0	0	10	2,850	2,875	117	114	219	256	5,450	5,500	779	741	927	858
975	1,000	0	0	0	13	2,875	2,900	121	117	223	260	5,500	5,550	790	750	938	865
1,000	1,025	0	0	0	15	2,900	2,925	124	121	227	263	5,550	5,600	800	760	949	875
1,025	1,050	0	0	0	18	2,925	2,950	128	124	231	267	5,600	5,650	811	769	960	884
1,050	1,075	0	0	0	21	2,950	2,975	132	128	236	271	5,650	5,700	821	779	971	894
1,075	1,100	0	0	0	24	2,975	3,000	136	131	240	274	5,700	5,750	832	788	982	905
1,100	1,125	0	0	0	27	3,000	3,050	141	137	246	280	5,750	5,800	842	798	993	916
1,125	1,150	0	0	0	30	3,050	3,100	149	144	255	287	5,800	5,850	853	807	1,004	927
1,150	1,175	0	0	0	33	3,100	3,150	157	152	263	294	5,850	5,900	863	817	1,015	938
1,175	1,200	0	0	0	36	3,150	3,200	165	160	272	301	5,900	5,950	874	826	1,026	949
1,200	1,225	0	0	0	39	3,200	3,250	173	168	280	309	5,950	6,000	884	836	1,037	960
1,225	1,250	0	0	0	42	3,250	3,300	181	176	289	316	6,000	6,050	895	845	1,048	971
1,250	1,275	0	0	0	45	3,300	3,350	189	184	297	324	6,050	6,100	905	855	1,059	982
1,275	1,300	0	0	0	48	3,350	3,400	197	192	306	333	6,100	6,150	916	864	1,070	993
1,300	1,325	0	0	0	51	3,400	3,450	205	200	315	341	6,150	6,200	926	874	1,081	1,004
1,325	1,350	0	0	0	54	3,450	3,500	213	208	324	349	6,200	6,250	937	883	1,092	1,015
1,350	1,375	0	0	0	57	3,500	3,550	221	216	334	357	6,250	6,300	947	893	1,103	1,026
1,375	1,400	0	0	0	60	3,550	3,600	229	224	343	365	6,300	6,350	958	902	1,114	1,037
1,400	1,425	0	0	2	63	3,600	3,650	238	232	353	373	6,350	6,400	968	912	1,125	1,048
1,425	1,450	0	0	5	66	3,650	3,700	246	240	362	381	6,400	6,450	979	921	1,136	1,059
1,450	1,475	0	0	9	69	3,700	3,750	255	248	372	389	6,450	6,500	989	931	1,149	1,070
1,475	1,500	0	0	12	72	3,750	3,800	263	256	381	397	6,500	6,550	1,000	940	1,161	1,081
1,500	1,525	0	0	16	75	3,800	3,850	272	264	391	405	6,550	6,600	1,010	950	1,174	1,092
1,525	1,550	0	0	19	79	3,850	3,900	280	272	400	413	6,600	6,650	1,021	959	1,186	1,103
1,550	1,575	0	0	23	82	3,900	3,950	289	280	410	421	6,650	6,700	1,031	969	1,199	1,114
1,575	1,600	0	0	26	85	3,950	4,000	297	288	419	429	6,700	6,750	1,042	978	1,211	1,125
1,600	1,625	0	0	30	88	4,000	4,050	306	296	429	438	6,750	6,800	1,052	988	1,224	1,136
1,625	1,650	0	0	33	91	4,050	4,100	315	305	438	446	6,800	6,850	1,063	997	1,236	1,149
1,650	1,675	0	0	37	94	4,100	4,150	324	314	448	454	6,850	6,900	1,073	1,007	1,249	1,161
1,675	1,700	0	0	40	98	4,150	4,200	334	323	457	462	6,900	6,950	1,084	1,016	1,261	1,174
1,700	1,725	0	0	44	101	4,200	4,250	343	332	467	470	6,950	7,000	1,094	1,026	1,274	1,186
1,725	1,750	0	0	47	104	4,250	4,300	353	341	476	478	7,000	7,050	1,105	1,035	1,286	1,199
1,750	1,775	0	0	51	107	4,300	4,350	362	350	486	486	7,050	7,100	1,116	1,046	1,299	1,211
1,775	1,800	0	0	54	110	4,350	4,400	372	359	495	494	7,100	7,150	1,126	1,057	1,311	1,224
1,800	1,825	0	0	58	114	4,400	4,450	381	368	505	502	7,150	7,200	1,140	1,068	1,324	1,236
1,825	1,850	0	0	61	117	4,450	4,500	391	377	514	510	7,200	7,250	1,152	1,079	1,336	1,249
1,850	1,875	0	0	65	120	4,500	4,550	400	386	524	518	7,250	7,300	1,164	1,090	1,349	1,261
1,875	1,900	0	0	68	123	4,550	4,600	410	395	533	526	7,300	7,350	1,176	1,101	1,361	1,274
1,900	1,925	0	0	72	126	4,600	4,650	419	404	543	534	7,350	7,400	1,188	1,112	1,374	1,286
1,925	1,950	0	0	76	130	4,650	4,700	429	413	552	543	7,400	7,450	1,200	1,123	1,386	1,299
1,950	1,975	0	0	79	133	4,700	4,750	438	422	562	551	7,450	7,500	1,212	1,134	1,399	1,311
1,975	2,000	0	0	83	136	4,750	4,800	448	431	571	559	7,500	7,550	1,224	1,145	1,411	1,324
2,000	2,025	0	0	87	139	4,800	4,850	457	440	581	567	7,550	7,600	1,236	1,156	1,424	1,336
2,025	2,050	0	0	91	142	4,850	4,900	467	449	590	575	7,600	7,650	1,248	1,167	1,436	1,349
2,050	2,075	2	2	94	145	4,900	4,950	476	458	600	583	7,650	7,700	1,260	1,177	1,449	1,361
2,075	2,100	5	5	98	149	4,950	5,000	486	467	609	591	7,700	7,750	1,270	1,187	1,461	1,374
2,100	2,125	9	9	102	152	5,000	5,050	495	476	619	599	7,750	7,800	1,280	1,196	1,474	1,386
2,125	2,150	12	12	106	156	5,050	5,100	505	485	628	607	7,800	7,850	1,290	1,205	1,486	1,399
2,150	2,175	16	16	109	159	5,100	5,150	514	494	638	615	7,850	7,900	1,301	1,215	1,499	1,411
2,175	2,200	19	19	113	162	5,150	5,200	524	503	647	623	7,900	7,950	1,311	1,224	1,511	1,424
2,200	2,225	23	23	117	166	5,200	5,250	533	512	657	631	7,950	8,000	1,321	1,233	1,524	1,436
2,225	2,250	26	26	121	169	5,250	5,300	543	521	666	639	8,000	8,050	1,331	1,243	1,536	1,449
2,250	2,275	30	30	124	173	5,300	5,350	552	530	676	647	8,050	8,100	1,341	1,252	1,549	1,461
2,275	2,300	33	33	128	176	5,350	5,400	562	539	685	656	8,100	8,150	1,352	1,261	1,561	1,474
2,300	2,325	37	37	132	179	5,400	5,450	571	548	696	664	8,150	8,200	1,362	1,271	1,574	1,486
2,325	2,350	40	40	136	183	5,450	5,500	581	557	707	672	8,200	8,250	1,372	1,280	1,586	1,499
2,350	2,375	44	44	139	186	5,500	5,550	590	566	718	680	8,250	8,300	1,382	1,289	1,599	1,511
2,375	2,400	47	47	143	190	5,550	5,600	600	575	729	688	8,300	8,350	1,392	1,299	1,611	1,524
2,400	2,425	51	51	147	193	5,600	5,650	609	584	740	697	8,350	8,400	1,403	1,308	1,624	1,536
2,425	2,450	54	54	151	196	5,650	5,700	619	593	751	706	8,400	8,450	1,413	1,317	1,637	1,549
2,450	2,475	58	58	155	200	5,700	5,750	628	602	762	716	8,450	8,500	1,423	1,327	1,651	1,561
2,475	2,500	61	61	159	203	5,750	5,800	638	611	773	725	8,500	8,550	1,433	1,336	1,665	1,574
2,500	2,525	65	65	163	207	5,800	5,850	647	620	784	734	8,550	8,600	1,443	1,346	1,679	1,586
2,525	2,550	68	68	167	210	5,850	5,900	657	629	795	744	8,600	8,650	1,454	1,355	1,693	1,599
2,550	2,575	72	72	171	213	5,900	5,950	666	638	806	753	8,650	8,700	1,464	1,364	1,707	1,611
2,575	2,600	76	75	175	217	5,950	6,000	676	647	817	762	8,700	8,750	1,474	1,374	1,721	1,624
2,600	2,625	79	79	179	220	6,000	6,050	685	656	828	772	8,750	8,800	1,484	1,383	1,735	1,637
2,625	2,650	83	82	183	224	6,050	6,100	695	665	839	781	8,800	8,850	1,494	1,392	1,749	1,651
2,650	2,675	87	86	187	227	6,100	6,150	706	674	850	790	8,850	8,900	1,505	1,402	1,763	1,665
2,675	2,700	91	89	191	231	6,150	6,200	716	684	861	800	8,900	8,950	1,515	1,411	1,777	1,679
2,700	2,725	94	93	195	234	6,200	6,250	727	693	872	809	8,950	10,000	1,525	1,420	1,791	1,693
2,725	2,750	98	96	199	238												

Appendix C

METHOD FOR DETERMINING EDUCATIONAL COSTS[13]

I. Faculty or Instructional Costs

A. Faculty salary and fringe benefits of the instructors teaching the course included in the curriculum will be identified. Let it be $ X per quarter.

B. The percentage of instructional time devoted to the course will be determined. Let it be α %.

C. The instructor's cost will be found by multiplying the faculty salary etc. by the percentage of instructional time spent on the course. This is equal to $ $X\alpha$.

D. The instructional cost of the course as determined by (C) above will be divided by the actual enrollment in the course. Let the actual enrollment be N. The instructional cost per graduate is equal to $\$\frac{X\alpha}{N}$.

Note: If a course has more than one section and is taught by different instructors, the instructional cost per student for each section as well as the average instructional cost per student for the course as a whole will be determined.

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[13]This method was developed by Dr. Mehar Aurora, University of Wisconsin-Stout. It is the basis for determining the economic costs presented in this study.

II. Students:

A. The opportunity costs to the student will be regarded as societal cost. This implies that if the student was not getting education, he will be working some place. The prevailing wage rate in the community for an average cohort will be estimated. The repercussions of the entry of students (without training) on the wage rate of the currently employed labor is assumed to be negligible and will be ignored.

III. Equipment Costs:

An inventory of the shop equipment will be taken along with the following information.

A. Date of purchase of equipment.

B. The remaining economic life of equipment from instructional point of view.

C. The total economic life of equipment will be determined by adding (A) and (B) above. Let it be t years or 4 t quarters.

D. The initial cost of the equipment (let it be $ Y) will be prorated over the economic life as determined in (C) above. Thus the quarterly cost of the equipment in the shop is equal to $\frac{\$ Y}{4t} = \$ Z$.

Alternative

The above procedure ignores the time value of the money spent on the equipment. It is, therefore, suggested that the quarterly cost of the equipment will be determined by the following formula.

$ Y. (Capital Recovery factor at quarterly i interest rate for 4t quarters) = $ Z.

The calculations in the alternative step (D) above. The above procedures of depreciation assumes that the salvage value of the equipment is negligible and is, therefore, being ignored.

E. The hours of all the courses taught in the shop will be determined. Let it be H.

F. If the course is using h hours of total H hours, the shop is being used for all courses and the quarterly costs of shop equip-

ment is $ Z as calculated in D above, the equipment cost of the course is equal to $\frac{h}{H}$ Z.

G. The cost per graduate will be determined by dividing the costs as calculated in (F) above by the actual enrollment.

Note: The equipment cost has been based on the time utilization rather than actual utilization of equipment. It is very probable that actual utilization in the advanced courses may be more than in the introductory courses. In order to remedy this situation, weights can be assigned for the actual utilization and the costs prorated according to the weighted utilization in different courses. Further, maintenance costs of equipment will be taken into account only if figures are available. It is, however, suggested that such a record should be maintained as it would also help in generating a sound replacement policy.

IV. Building Costs:

A. The initial capital outlay (fixed) will be determined. Let it be $ X.

B. The economic life of the buildings will be estimated. Let it be T years.

C. The fixed costs ($ X) will be prorated over the economic life of the building in order to find the annual costs. Thus the annual cost = $ $\frac{X}{T}$.

D. The maintenance costs incurred in the past will be determined and estimated for the remaining life of the buildings. Most probably the maintenance costs will have a tendency to increase with the life of the buildings. In order to overcome this problem, the cash outflow for maintenance occuring at different periods of time will be equally distributed at i interest rate by using the following formula.

[M_1 (Present Worth Factor at i interest rate for year 1) + M_2 (P.W.F. at i for 2 years) +.....+M_T (P.W.F. at i for T years)]x (Capital Recovery Factor at i interest rate for T years)

E. The annual custodial and janitorial services for the buildings will be determined from the past.

F. The annual costs for utilities will be determined.

G. The annual property tax on the building will be estimated although state property is not subjected to property tax. It is felt that this should be included in order to determine societal costs.

H. The annual costs calculated in (C) to (G) above will be added to get one annual figure for the costs of the buildings.

I. The space areas used for instruction, administration and auxiliary services will be determined and the costs prorated among these major items of income on the basis of actual space utilization.

J. The space area occupied by different instructional rooms and the hours each room is utilized will be determined by multiplying the space area for each room by the hours it is utilized. Let $S_1, S_2 \ldots\ldots\ldots\ldots\ldots S_n$ be the space areas occupied by n rooms. Further, let $t_1, t_2, \ldots\ldots\ldots\ldots\ldots t_n$ be the hours each space area is used. The total space utilization is $S_1t_1 + S_2t_2 + \ldots\ldots S_nt_n$ = T.S. sq. ft. hours.

K. The course space cost is calculated by finding it as a percentage of total sq. ft. hours multiplied by the instructional space cost as calculated in (J) above.

L. The space cost per student is the space cost for the course as calculated in (K) above divided by the actual enrollment.

V. Administration at School Level

A. The annual salaries, fringe benefits of administrators and office employees will be determined along with other associated expenses connected with administration.

B. The annual depreciation of office equipment will be determined in the same way as shop equipment used for instruction.

C. The annual space costs for administration will be determined in the same way as the space cost for the courses.

D. Items (A) to (C) will be added to get one figure for annual adminstrative expenses at school level and this amount would be prorated among the departments based on the number of faculty in each department.

E. The departmental supervision expenses will be determined by multiplying the percentage of responsibilities for administration with the salary, fringe benefits, etc. of the supervisor of the program. Any other associated expenses like supplies, etc. will also be taken into consideration.

F. The figures obtained in (D) and (E) above will be added and prorated among courses based on the instructional time of each course (divide by FTEs).

VI. Auxiliary Services:

A. The salaries, fringe benefits etc. of employees associated with auxiliary services will be determined.

B. The expenses due to supplies, traveling, etc. will be determined.

C. The buildings costs will be determined as discussed earlier.

D. The equipment costs if any will be determined and prorated among the economic life of the equipment.

E. Item (A) to (D) will be added to get one figure for annual expenses.

F. Any revenue e.g. sale of food etc. will be deducted from the total annual expenses as determined in (D) above and the net annual expenses calculated.

G. The net annual expenses as determined in (F) above will be divided by the actual enrollment.

UNIVERSITY OF CALIF.
LOS ANGELES

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CLEARINGHOUSE FOR
JUNIOR COLLEGES

VII. Costs:

A. Student Point of View

1. Tuition = $

2. Books & Supplies = $

Total = $

B. Opportunity Costs

3. Foregone earnings net of taxes = $

4. Total Costs = $

5. Scholarships, Stipends(if any) = $

Net Costs = $

APPENDIX D [14]

FOOD MANUFACTURING - April 1973

Number of graduates responding	8
Number not responding	0
Employed in related occupation	5
Employed in unrelated occupation	0
Seeking employment	0
Not in labor market (married, school, service, etc.)	3
Average monthly salary (related occupation only)	$633
Range of monthly salary (related occupation only)	$400 - 800

Place of Employment (related occupation only)

The Larsen Company, Green Bay
Friday Canning Co., New Richmond
Fond du Lac Health Dept., Fond du Lac
Fhoors of Waukesha, Waukesha
Economics Laboratories, Inc., St. Paul, MN

FOOD MANUFACTURING – CANNING AND FREEZING - January 1974

Number of graduates responding	4
Number not responding	1
Employed in related occupation	4
Employed in unrelated occupation	0
Seeking employment	0
Not in labor market (married, school, service, etc.)	0
Average monthly salary (related occupation only)	$698
Range of monthly salary (related occupation only)	$476 - 950

Placement of Employment (related occupation only)

Ackley Food Products, Ackley, IA
Green Giant Canning Co., Fox Lake
Mammoth Springs Canning Co., Oakfield
Green Giant Canning Co., Beaver Dam

FOOD MANUFACTURING – DAIRY - January 1974

Number of graduates responding	2
Number not responding	0
Employed in related occupation	2
Employed in unrelated occupation	0
Seeking employment	0
Not in labor market (married, school, service, etc.)	0
Average monthly salary (related occupation only)	$811
Range of monthly salary (related occupation only)	$800 - 822

Place of Employment (related occupation only)

Alpenrose Dairy, Cottage Grove
Verifine Dairy Co., Sheboygan

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[14] Moraine Park Technical Institute. The LINK, 1972 and 1973 Followup Reports, April 1973 and January 1974.